

**Maritime and Fisheries Education Fund
Finnish Institute of Fisheries and Environment**

SAMPI II -project

Current State of Professional Fishing in the Archipelago Sea

and

Strategy for Years 2005 – 2013



**Maria Saarinen
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INTRODUCTION

This publication is a summary of the large report on the **SAMPI** project 2005, **The Current State of Professional Fishing in the Archipelago Sea and Strategy for Years 2005 – 2013**. The full version of the report can be read both in Finnish and Swedish at the **SAMPI** project website www.sakl.fi/sampi/

The aim of the investigation was to discover the means to develop professional fishing in the Archipelago Sea, to improve the profitability of the industry, as well as to make it easier to recruit new fishermen to the branch. The prime focus of attention has been small-scale coastal fishing (= according to EU directives < 12 m vessels).

The number of professional fishermen on the Archipelago Sea has reduced by more than half during the last 20 years; the profitability of fishing has also fallen despite increased catch efficiency. Factors to explain this include higher costs, lower fish prices, marketing difficulties, changes in fish stocks and a huge increase in seal damage during the last few years.

The basis for making this strategy is the result of an investigation into the most important factors concerning professional fishing in the Archipelago Sea for more than 20 years. The statistics from the year 2003 have mainly concentrated on the Professional Fishermen's Registry, group 1 professional fishermen. Due to the similarities in fishing methods, a geographical border has been drawn along the Lokalahti fishing area through Utö and Hiittis towards Särkisalo.

The updating of the current state of professional fishing and strategy was part of the third phase of the **SAMPI II** project, where the Maritime and Fisheries Education Fund (Finnish Institute of Fisheries and Environment) applied for funding. The implementers of the project were the Saaristomeren Ammatikalastajat ry (Archipelago Sea Professional Fishermen's Association) ja Selkämeren Ammatikalastajat ry (Gulf of Bothnia Professional Fishermen's Association).

The project was financed by the Varsinais-Suomen TE-keskus (Southwest Finland Employment and Economic Development Centre), of which 50 per cent was EU funding (KOR) and 50 per cent national funding.

1. ARCHIPELAGO SEA AND PROFESSIONAL FISHING

1.1 GENERAL DESCRIPTION OF THE ARCHIPELAGO SEA

The sea between Uusikaupunki and the Hankoniemi peninsula is known as the Archipelago Sea. The Archipelago Sea is the largest inner archipelago sea in the world. Its total area is 8300 km², of which less than one fourth is land. There are more than 22 000 islands dominating the seascape. The average depth is only approximately 23 metres and the largest depth is 146 metres. An average depth of 20 metres can only be found at the open sea. The coastal waters are usually less than 10 metres in depth.

The Archipelago Sea has more than 12 000 kilometres of shoreline. The coastline and the inner archipelago are part of a changing and broken area, with typical features such as long bays stretching inland, differing-sized islands, small shallow sounds and open stretches of water. The flow of water in this labyrinth-like dense archipelago can be rather bad at certain places.

The inner archipelago changes when moving towards the sea from the shore. In the mid archipelago the islands are smaller and the percentage of water covering the area is greater. In the outer archipelago the bedrock is only visible as small skerries above the waterline.

Water flows through the Archipelago Sea from the Baltic Sea and the Gulf of Finland towards the Gulf of Bothnia. The Archipelago Sea is also an area where freshwater from rivers and ditches mix with the seawater. The largest rivers flowing into the Archipelago Sea are the rivers Paimionjoki, Kiskonjoki, Aurajoki, Uskelanjoki, Laajoki, Mynäjoki, Halikonjoki and Hirvijoki.

The concentration of salt in the Archipelago Sea is 5.5 – 6.5 per mille, with no large changes in the salt concentration of the surface water and bottom water. The inner archipelago used to have a permanent ice cap at the end of December and the outer archipelago had a permanent ice cap during February. However, during the past few decades the mild winters have “postponed” the formation of the ice cap.

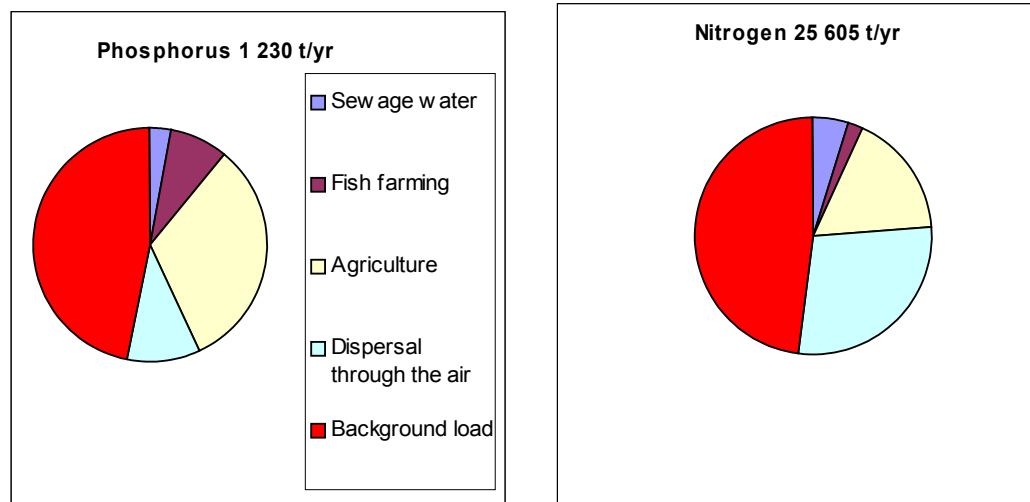
The permanent inhabitants of the Archipelago Sea area number approximately 33 000 in total. However, there are approximately 250 000 inhabitants living along the coastal area within close proximity to the sea. Additionally, there are more than 20 000 summer houses in the area, and many millions of travellers pass through the Archipelago Sea annually.

1.2 WATER LOAD AND WATER QUALITY

The growth of nutrient content and eutrophication are the largest environmental problems in the Archipelago Sea as well as in the entire Baltic Sea.

The load in the Archipelago Sea comes from sewage water from communities and industries, agriculture and forestry, scattered communities as well as fish

farming (Picture 1). However, the largest part of nutrient load comes as dispersal from far away, either directly through the air or as background load from other locations along the Baltic Sea (more than 75 % nitrogen and approximately 60 % phosphorus). There is also a natural nutrient flow into the water-course from the soil. This is known as natural leaching.



Picture 1. The origin and amount (tonnes) of phosphorus and nitrogen leaching into the Archipelago Sea annually (source: Helminen, H. & Vuorinen, I. 2002: Saaristomeren tila).

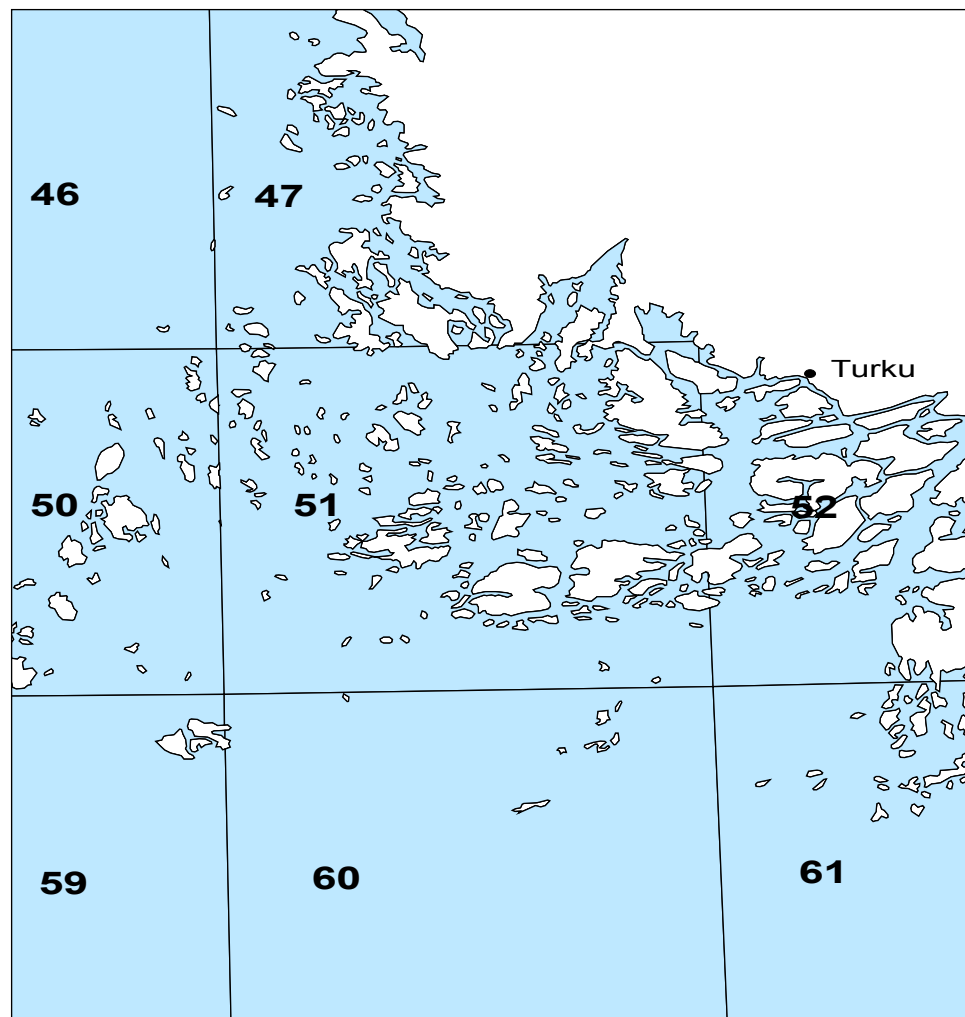
The state of the Archipelago Sea is best in the outer archipelago, becoming slowly worse when moving towards the inner archipelago and the coastal areas. However, a growth of nutrient content in the outer archipelago is now clearly seen. The lowest nutrient content can be found in the outer archipelago of Uusikaupunki and Kustavi as well as in the southern parts of Kihti. In the southern and south-eastern parts of the outer regions of the Archipelago Sea the waters are slightly more eutrophic. The cleanest water in the mid archipelago can be found in the southern part of the Airisto archipelago as well as in the southern and south-western parts of the Rymättylä waters. The most eutrophic waters in the Archipelago Sea are found furthest inside the large bays (Halikonlahti, Paimionlahti, Raisionlahti, Mynälahti) and outside Turku. The quality of river water has been classified as being mainly tolerable.

The gradual widespread eutrophication of the Archipelago Sea is set to continue, since it is not possible to reduce the background load and scattered load in significant amounts quickly. A positive result of small-scale eutrophication has been the increased amount of turbid water preferred by pike-perch for example. However, the amount of fish of less importance will start to increase as eutrophication continues.

1.3 PROFESSIONAL FISHING CATCH AND VALUE 1980 - 2003

Professional fishing in the Archipelago Sea is small-scale coastal fishing using nets and fykes. Baltic herring is caught in the more open waters by trawling. Trawling is decreasing since many registered trawlers in the Archipelago Sea have either been sold or broken-up during the years 2004 – 2005.

Catch statistic squares 47, 51, 52, 60 and 61 concerning Finnish professional fishing fit best although not completely for the project area (Picture 2). However, the catch information from the squares does give a good idea of the development of professional fishing in the Archipelago Sea.



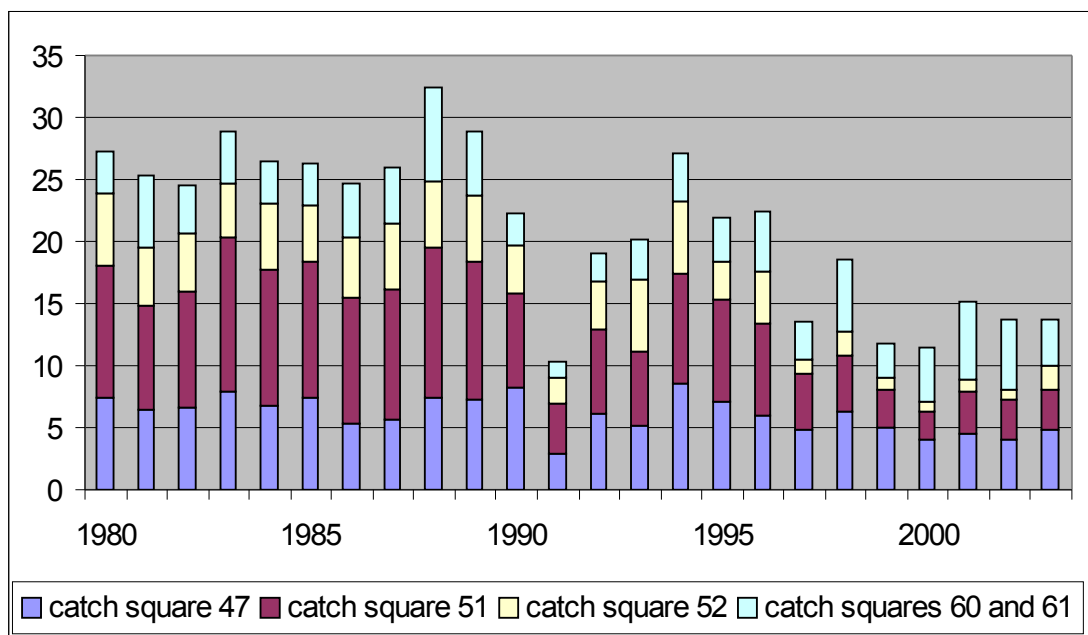
Picture 2. Catch squares 47, 51, 52, 60 and 61 are in the Archipelago Sea. (Source WFRI)

1.3.1 BALTIC HERRING

While Baltic herring is the most important fish for professional fishing in the Archipelago Sea, both concerning the catch and economical value, its importance has diminished. During the year 2003, approximately 75 per cent of the Baltic herring catch in the area was caught by trawling. Less than one per cent was caught using nets and the rest using traps.

Baltic herring has traditionally been trawled in the northern parts of the area around the Iniö open waters and further south in the waters of Houtskari, Korppoo, Nauvo and Dragsfjärd. Fyke fishing has diminished remarkably; only a fifth of the number of Baltic herring fykes used in the 1980s were still being used in the project area in 2003, i.e. approximately 160. Fyke fishing is concentrated to the coastal waters of Taivassalo as well as to the northern areas of the sounds in Merimasku and Velkua.

A diminishing trend can be seen in the Baltic herring catch especially after the year 1994 (Picture 3). Catches have diminished most in catch squares 51 and 52, which are the traditional fyke fishing areas.



Picture 3. Professional fishing Baltic herring catch (million kg) in the Archipelago Sea in the years 1980 – 2003.

1.3.2 SCALEFISH

The scalefish catch has remained at more than one million kilos annually since 1993. The best catch years have been during 1997 and 2003. Catches have grown the most in catch square 47, and there is also a noticeably increasing trend in catch square 51. In catch square 52 the trend has been diminishing since the year 1995, if the unusually good pike-perch year of 1997 is not taken into consideration.

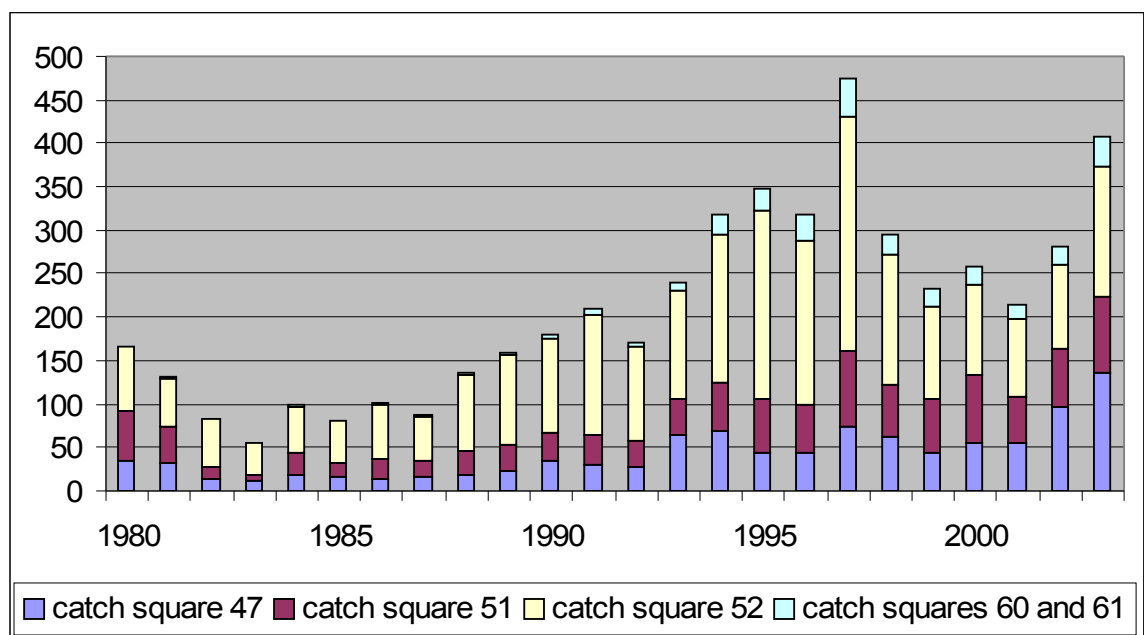
1.3.2.1 Pike-perch

Pike-perch fishing has compensated the loss of income suffered by professional fishermen in the Archipelago Sea due to less Baltic herring catches. In the year 2003, professional fishermen in the Archipelago Sea caught approximately half of the total professionally caught pike-perch catch in Finland.

The largest part of the professionally caught pike-perch catch is caught using nets late in the autumn and in the spring. During the spawning season, some pike-perch is also caught in Baltic herring and scalefish fykes.

According to decisions concerning fishing areas in the Archipelago Sea, the smallest mesh size permitted in nets has been 43 or 45 mm since 2001.

An increasing trend can be seen in the pike-perch catch since the mid 1980's (Picture 4). However, a diminishing trend can be seen in catch square 52 after the peak year of 1997. In catch square 47, the catch has almost tripled in five years.



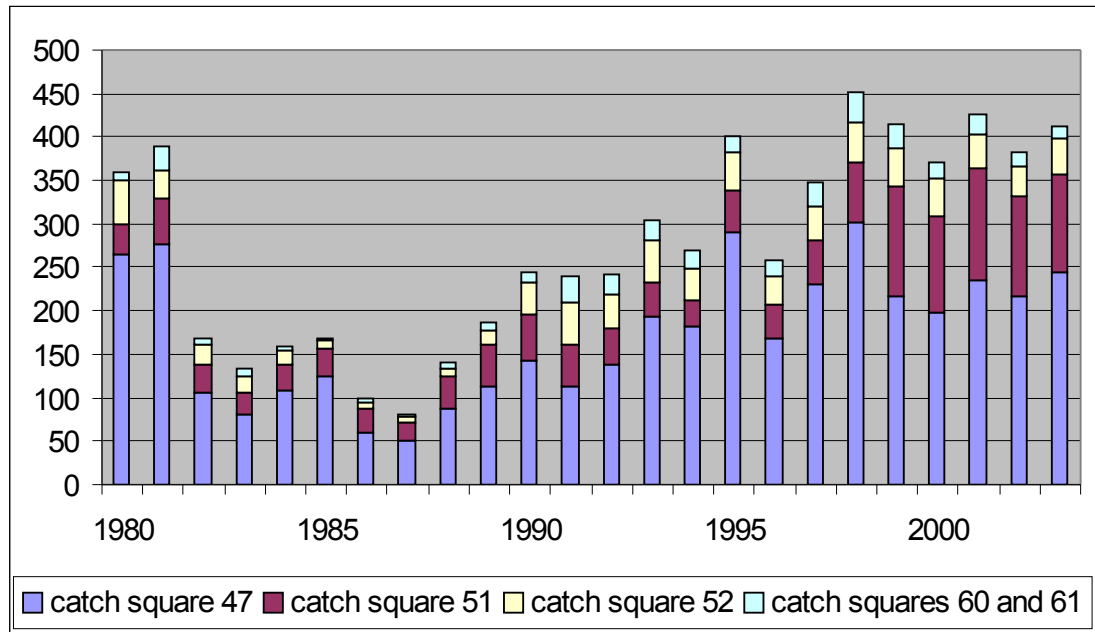
Picture 4. Professional fishing pike-perch catch (tonnes) in the Archipelago Sea in the years 1980 – 2003.

1.3.2.2 Perch

Perch stocks are high throughout the entire Archipelago Sea, since there is an abundance of feeding and spawning areas. In the year 2003, professional fishermen in the Archipelago Sea caught approximately 40 per cent of the total professionally caught perch catch in Finland.

The largest part of the professionally caught catch is in April-May using nets and fykes; and through the use of nets at the end of the summer and during the autumn season.

The perch catch has grown significantly since the mid 1980's (Picture 5), and since the year 1997 the catch has remained over 350 tonnes. Perch fishing is concentrated on catch square 47, where more than half of the catch is caught. During recent years, the catch has increased mostly in catch square 51.



Picture 5. Professional fishing perch catch (tonnes) in the Archipelago Sea in the years 1980 – 2003.

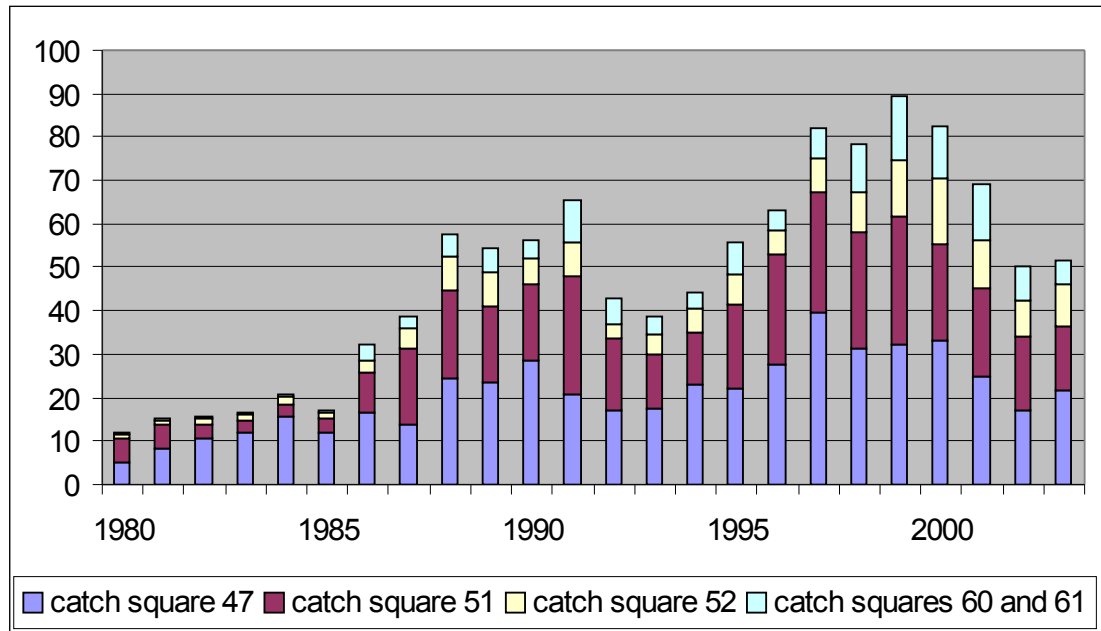
1.3.2.3 Whitefish

There are two types of whitefish in the Archipelago Sea. Migratory whitefish stocks are completely dependent on planting. Local whitefish spawn in the sea. Since few spawning areas remain today, many archipelago whitefish fry have been planted during the past few years. The archipelago whitefish share of the catch is approximately one fourth.

Approximately 75 per cent of the professionally caught whitefish catch is caught using 36 – 45 mm bottom nets, the remainder using 46 – 50 mm nets. A very small amount is caught using whitefish or salmon fykes. - During recent years the behaviour of whitefish has significantly altered; the fish have moved to shallower waters.

Whitefish fishing is concentrated to the northern parts of the Archipelago Sea and to the Turunmaa archipelago.

The whitefish catch increased until the end of the 1990's due to planting (Picture 6). Since the year 2000 the catch has diminished to almost half from the peak year of 1999.



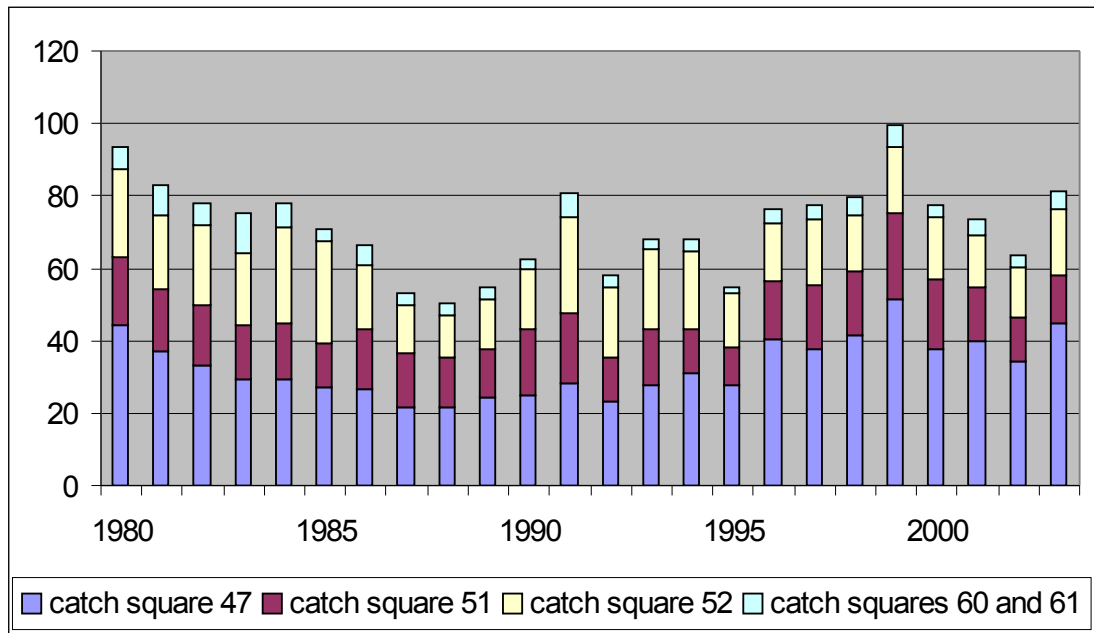
Picture 6. Professional fishing whitefish catch (tonnes) in the Archipelago Sea in the years 1980 – 2003.

1.3.2.4 Pike

Approximately 25 per cent of the professionally-caught pike catch in Finland was caught in the Archipelago Sea during the year 2003.

The largest part of the professional catch is caught during the first half of the year. The main catch method is through the use of nets; a small part of the catch is caught using pike spike and fykes. Pike fishing is concentrated to the southern parts of the Turunmaa archipelago as well as to the areas around Uusikaupunki-Kustavi.

The pike catch has increased from the end of the 1980s (Picture 7, s. 11). Since the year 2000, the catch has varied between 60 and 80 tonnes. The largest part of the pike catch is caught in catch square 47, and approximately 40 per cent of the pike catch in this square comes from outside the Archipelago Sea (from the Uusikaupunki waters).



Picture 7. Professional fishing pike catch (tonnes) in the Archipelago Sea in the years 1980 – 2003.

1.3.2.5 Other species

Burbot The burbot catch has diminished; and the professional burbot fishing catch has diminished to approximately half in ten years. At first, the reason was due to a lack of demand, although later the fish has disappeared from the former catching areas. The largest part of burbot is caught using nets, although line and pike spike as well as fykes are used for catching a small part of the professionally-caught catch.

Bream Bream are abundant in the area, and it has been noted that the species is spreading further out from the coast. The increase in the bream population is mainly due to a remarkable catch reduction and a high spawning rate.

Flounder Flounder to a certain degree is caught mostly during the summer months in the Turunmaa archipelago areas.

Others The importance of trout for professional fishing is very small. Side catches when net fishing are among others, roach, ide and smelt. The roach population has increased due to eutrophication. Sprat is caught as a side catch when trawling.

1.3.3 CATCH VALUE

The price of fish started to fall in Finland, particularly from the end of the 1980s. At present, the price of the most economically-valuable scalefish species, pike-perch, perch and pike, are only 60 – 70 per cent of the prices they were in 1990. The price development for whitefish has been increasing. The

annual value of scalefish caught in the Archipelago Sea during the past ten years has varied between 1.6 – 2 million euros.

The real price of Baltic herring caught for human consumption in the Archipelago Sea in the year 2003 was less than half of the price obtainable in the year 1994. The price of Baltic herring caught for industrial use had approximately remained the same. The value of the Baltic herring catch since the year 2000 has only been approximately 2 million euros.

1.4 GROUP 1 PROFESSIONAL FISHING IN YEAR 2003

According to the Professional Fishermen's Register, a group 1 professional fisherman is a fisherman whose total income, according to state tax declarations, is more than 30 per cent of total income.

The **SAMPI project** researched the activities of professional fishermen belonging to group 1, as well as catches whose geographical borders run along the fishing area borders from Lokalahti to Särkisalo (Picture 8).



Picture 8. SAMPI project activity area.

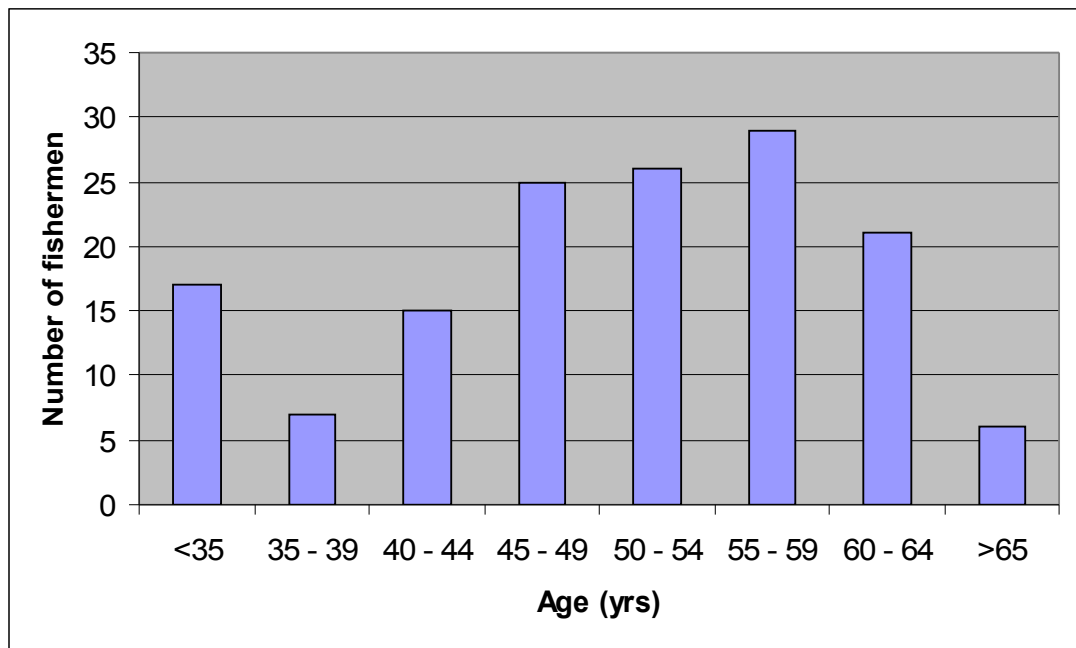
1.4.1 NUMBER OF PROFESSIONAL FISHERMEN AND AGE STRUCTURE

The number of professional fishermen in the Archipelago Sea has plummeted during the past two decades. The decrease in Baltic herring fishing has had the largest impact on the number of fishermen.

At the end of the year 2003 there were 146 professional fishermen in group 1 living in the Archipelago Sea area. At the beginning of the 1980s there were still 450- 500 mainly employed as professional fishermen in the area.

Group 1 professional fishermen also included 33 women. There were 14 professional fishermen belonging to group 2. There were 181 professional fishermen belonging to group 3, who occasionally sold their catch.

The average age of group 1 professional fishermen was 49.6 yrs. (Picture 9). More than half (56 %) were over 50 yrs. Only 17 fishermen were under 35 yrs.



Picture 9. Group 1 professional fishermen age structure in the project area 31.12.2003 (n=146)

1.4.2 CATCH AND FISHING STRUCTURE

1.4.2.1 Catch declaration

During the year 2003, a total of 95 households reported catching scalefish. Baltic herring was caught by 27 households using fykes. Baltic herring was also caught by 15 vessels trawling; 10 only in the Archipelago Sea and two outside the Archipelago Sea. Only one salmon vessel was registered.

1.4.2.2 Catch and value

Catch statistics have been researched for each municipality. Information from municipalities having less than 10 fishermen have been combined with the neighbouring municipality or municipalities.

| AREA | GROUP 1 PROFESSIONAL FISHERMEN (change compared to yr. 1999 in brackets) |
|--------------------------------------------|-----------------------------------------------------------------------------|
| • Lokalahti-Kustavi | 11 (-4) |
| • Taivassalo | 22 (-7) |
| • Velkua-Askainen-Merimasku-Masku-Naantali | 18 (-9) |
| • Rymättylä | 21 (-6) |
| • Turku-Kaarina-Piikkiö-Sauvo | 14 (-3) |
| • Iniö-Houtskari-Korppoo | 10 (-4) |
| • Nauvo-Parainen | 26 (+2) |
| • Kemiö-Västanfjärd-Dragsfjärd | <u>24 (-20)</u> |
| | 146 (-51) |

The following 17 species of fish have been caught (from the largest total kilo weight to the least, main catch given in bold): **Baltic herring, sprat, perch, pike-perch**, roach, **pike, bream, whitefish, burbot**, ide, **flounder**, smelt, **sea trout, rainbow trout, salmon, turbot** and cod.

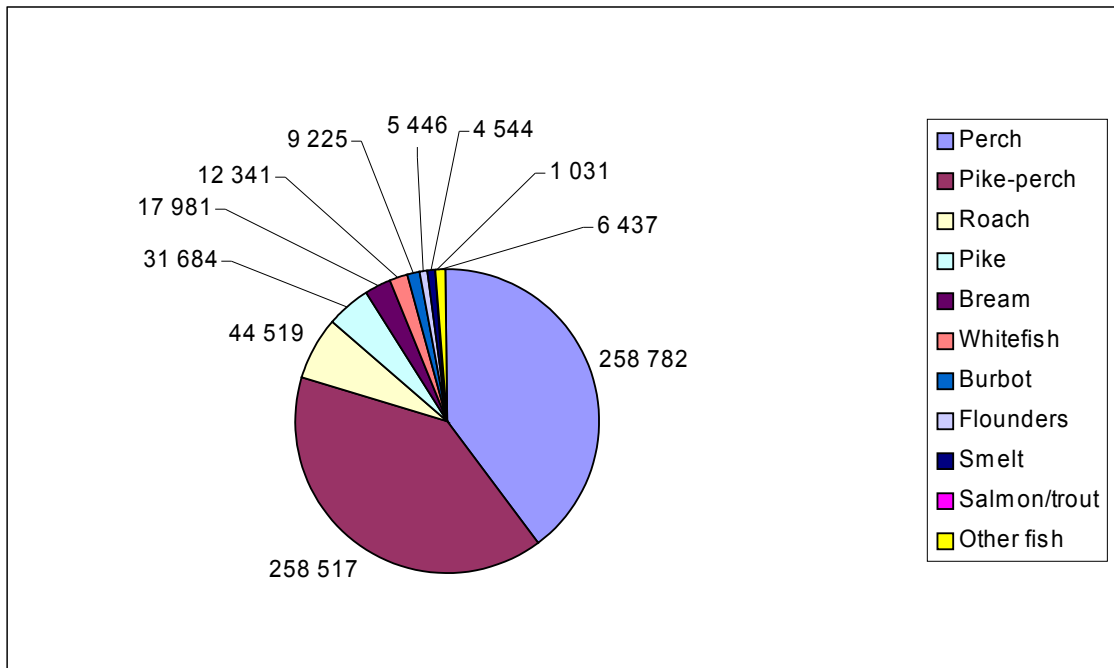
1.4.2.2.1 Scalefish

The total scalefish catch was approximately 650 000 kg. Both perch and pike-perch comprised almost 40 per cent of the catch (Picture 10, s.15).

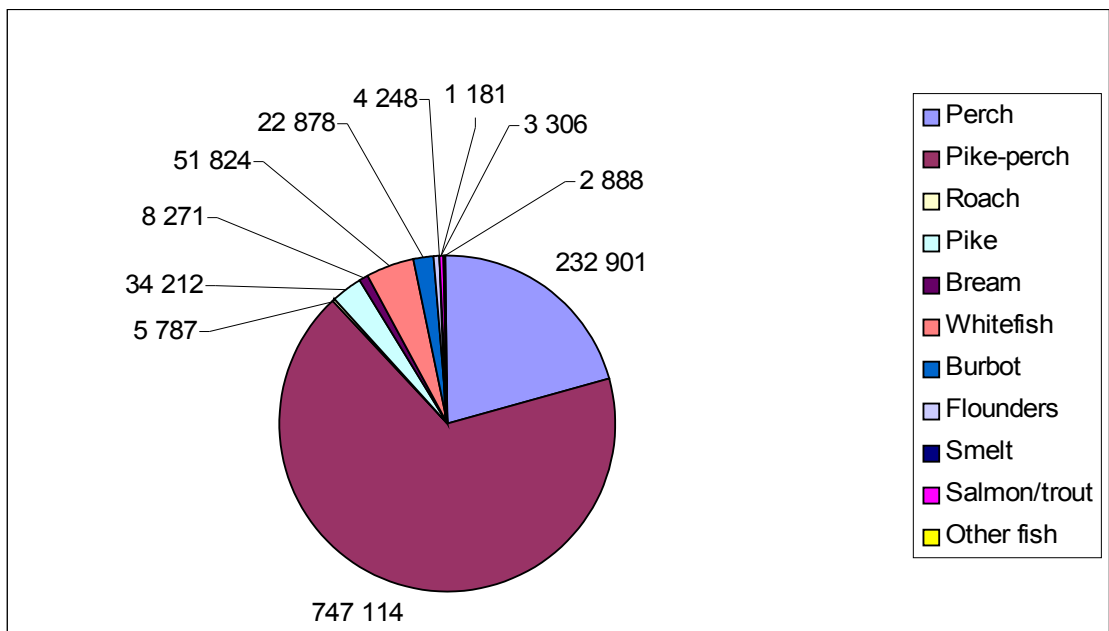
Value of the scalefish catch

The average prices paid to fishermen in the Archipelago Sea in the year 2003 have been used when calculating the value of the catch.

The total value of the scalefish catch was 1.15 million euros, of which pike-perch comprised almost 70 per cent and perch 20 per cent (Picture 11, s.15). The following fish species were whitefish, pike and burbot.



Picture 10. Group 1 professional fishermen catch (650 500 kg) (other than Baltic herring and sprat) in the Archipelago Sea during year 2003.



Picture 11. Group 1 professional fishermen catch (other than Baltic herring and sprat) value (1.15 million €) in the Archipelago Sea in year 2003.

Scalefish catch per household

The average scalefish catch per household was 6 850 kg. The differences between the largest and smallest catches per municipality and per household were large (Table 1). The largest catches were clearly caught in Taivassalo. The catches became smaller further south and west. The value of the scalefish catch per household was, on average, 11 700€. However, the differences between the individual households were significant.

Table 1. Group 1 professional fishermen average catch of scalefish per household and catch value per municipality in the Archipelago Sea in year 2003.

| <i>MUNICIPALITY (according to declaration of scalefish catch)</i> | <i>CATCH PER HOUSEHOLD kg (€)</i> | |
|-------------------------------------------------------------------|-----------------------------------|----------|
| Lokalahti-Kustavi (7) | 12 140 | (15 260) |
| Taivassalo (16) | 14 970 | (20 750) |
| Velkua-Askainen-Merimasku-Masku-Naantali (15) | 5 790 | (10 650) |
| Rymättylä (12) | 5 360 | (11 200) |
| Turku-Kaarina-Piikkiö-Sauvo (10) | 5 650 | (13 130) |
| Iniö-Houtskari-Korppoo (7) | 1 770 | (3 560) |
| Nauvo-Parainen (15) | 3 150 | (6 290) |
| Kemiö-Västanfjärd-Dragsfjärd (13) | 4 520 | (10 050) |

The type of fishing has a large influence on the catch value in households not practising Baltic herring fyke fishing (Table 2). The best livelihood, when taking catch value into consideration, is to concentrate on pike-perch fishing or large volumes of perch (using fykes). However, there were only 16 of such households.

Table 2. Influence of type of fishing on catch value among households only fishing for scalefish (total 68 households).

| SCALEFISH FYKES AND NETS (9 HOUSEHOLDS) | ONLY NETS, AND PIKE-PERCH > 5 TONNES (7 HOUSEHOLDS) | ONLY NETS, AND PIKE-PERCH < 5 TONNES (52 HOUSEHOLDS) |
|-----------------------------------------|-----------------------------------------------------|------------------------------------------------------|
| 21 800 € | 25 800 € | 6 500 € |

However, the catch statistics provide a partly misleading picture of the actual state, due to the following reasons:

- it has not been possible in the statistics to separate trawler fishermen involved in occasional coastal fishing
- possible other employment has not been included in the statistics
- The use of an average price for certain fish species, e.g. Baltic herring, causes a distortion. This especially concerns fishermen who process the fish themselves, for sale at the herring markets.

1.4.2.2 Baltic herring and sprat

Fyke and net

Approximately 3.35 million kg of Baltic herring was caught using fykes and 17 000 kg using nets. A total of 27 households declared that they had caught fish using fykes; a combined total of 160 fykes being used. The average catch per fyke was 21 000 kg.

Fishing was concentrated along the Finnish speaking coastline and archipelago. More than 40 per cent of the fyke catch was caught in Taivassalo. One million kilos of fish were caught in the Velkua-Askainen-Masku-Merimasku-Naantali area. The remainder, slightly less than one million kilos, was caught in Kustavi, Rymättylä, Parainen and Sauvo. Only approximately 10 per cent of the Baltic herring catch caught using fykes went to fodder.

Trawling

A total of 8.15 million kg of Baltic herring was caught through trawling, of which 63 per cent was caught in the Archipelago Sea area. The sprat catch was 1.4 million kg, of which less than half was caught in the Archipelago Sea. More than 80 per cent of trawled Baltic herring went to fodder.

Catch value

The total value of the Baltic herring catch from fyke fishing was 450 000 €, the average being 16 800 € per household. However, differences between households were large, and the average value of the five most important catches was 44 000 €.

The total trawl catch value (Baltic herring and sprat) was approximately 1.24 million euros. The average trawl catch per vessel was 640 tonnes.

1.4.2.3 Fishing structure

The structure of coastal fishing (other than trawling) was concentrated both according to catch size and monetary value.

When considering fishing from a weight perspective, the ten most active fishing households caught 66 per cent of the total catch, and the 20 most active fishing households caught 86 per cent of the total catch (Table 3, s. 18). The figures are also very similar when considering the statistics per fish species.

When considering the catch in monetary terms, it can be stated that the 20 most active fishing households took more than half of the entire monetary value.

A reasonable income for coastal fishermen appeared to be obtainable either from Baltic herring fishing using fykes, large volume perch fishing (using fykes), concentrating on pike-perch fishing, or through a combination of these above mentioned methods.

Table 3. Share of the total catch and total catch value regarding those most actively fishing for every fish species in the Archipelago Sea, 2003.

| <i>Species</i> | <i>10 most active</i> | <i>20 most active</i> | <i>30 most active</i> | <i>approx. (total number fishing)</i> |
|---------------------------------------------------------------|-----------------------|-----------------------|-----------------------|---------------------------------------|
| Perch | 61 % | 77 % | 86 % | 94 |
| Pike-perch | 36 % | 58 % | 72 % | 90 |
| Baltic herring (fyke) | 76 % | 95 % | 100 % | 27 |
| Total catch (other than trawling) (4 million kg total) | 66 % | 86 % | 93 % | 95 |
| Catch financially (other than trawling) (1.6 million € total) | 36 % | 55 % | 70 % | 95 |

1.4.3 FISH MIGRATION AND CATCH LANDING SITES

1.4.3.1 Fish collection and transport

The organised collection of scalefish takes place at Taivassalo, Velkua, Askainen, Merimasku and Rymättylä. The company, Kalarannan Vihannes Oy, normally visits these locations twice a week.

Two collectors, Salmon Farm Ab and Kalaliike Asp, operate in the Turunmaa archipelago along the Kemiö-Dragsfjärd route. Professional fisherman, Patrik Johansson, transports fish from Houtskar through Nauvo Kälidinge towards Turku.

Collection sites are located by the catch landing sites and the cooperative vessel piers as well as at central road crossings.

Although there are also several smaller fish collectors operating in the Archipelago Sea area, their importance is limited. A few fishermen transport fish directly to buyers. Fishermen living in areas where there is no fish collection transport their fish either to the collection sites in the closest municipality or directly to the buyer.

1.4.3.2 Fish harbours and catch landing sites

There are many different types of fishing harbours and catch landing sites in the area. The municipally-owned fishing harbours are few, and the equipment found there is generally rather poor.

Approximately half the Archipelago Sea professional fishermen scalefish catch is unloaded at either municipally-owned or publicly-owned catch landing sites. The other half is unloaded at privately-owned piers, of which there are many.

The following harbour directory presents the regional harbours, local coastal fishing harbours and other fishing harbours, classified according to the fishing harbour classification (2001), produced by the Suomen Ammattikalastajaliitto ry (Finnish Professional Fishing Association). Other catch landing sites in the area are the fishermen's individual landing sites, where there is nothing more than a pier.

Regional harbours

Laupunen fishing harbour (Kustavi). Privately-owned fishing harbour
 Tuomarainen fishing harbour (Taivassalo)
 Källdinge fishing harbour (Nauvo)
 Kasnäs fishing harbour (Dragsfjärd)

Local coastal fishing harbours

Teersalo fishing harbour (Velkua). Privately-owned fishing harbour
 Särkänalmi fishing harbour (Merimasku)
 Haapalanaranta fishing harbour (Rymättylä)

Other fishing harbours

Vuosnainen (Kustavi)
 Granvik (Parainen)

Other catch landing sites

Hakkenpää (Taivassalo)
 Tuomarainen shore (Taivassalo)
 Ihattula (Taivassalo)
 Röölä (Rymättylä)
 Prosvik (Nauvo)
 Galtby (Korppoo)
 Taalintehdas (Dragsfjärd)
 Sundvik (Västanfjärd)

1. 4.3.3 Catch handling and processing

Fish processing and value-adding

Fish are usually delivered to fish collectors as whole fish. Smaller buyers, like restaurants, wholesalers and large kitchens, usually have their fish delivered as filets. Fish sold by fishermen at fish markets are almost always processed to a certain degree.

According to a rough estimate, fishermen process 10-20 per cent of their catch; some fishermen filet, smoke or marinate virtually everything, while most fishermen don't do any processing at all.

1.5 SPECIAL ISSUES CONCERNING THE WORK ENVIRONMENT

1.5.1 SEALS

At present, the grey seal is the largest threat to professional fishing in the Archipelago Sea.

During the year 2005, a total of 7 960 seals were seen during an aerial count in the south western archipelago, of which 2 376 seals were seen in the Archipelago Sea. The number of seals seen in the Archipelago Sea is more than double when compared to the year 2001.

The seals tear the nets and eat the catch. According to the fishermen, the seals are also the reason to explain why fish migration has changed and become unpredictable over recent years; the fish swim away from the seals and the seals chase after them.

The **SAMPI** project has started to develop a seal-safe Push-up fyke suitable for scalefish catching, although development work in this field is a long process. At present, there is no seal-safe solution for the problems associated with net fishing for pike-perch and perch.

1.5.2 UNUSED WATER AREAS

The water areas in the Archipelago Sea are fragmented into thousands of ownership units. Most professional fishermen in the area fish either exclusively or partly in rented waters. Rented waters are found in traditional catch areas, and fishing permits in these areas are based on long-term rental agreements. Permits are often priced according to catch size.

Obtaining the right to use rental waters for professional fishing has been a long-term problem. Although there are many unused water areas, the owners simply do not want to rent them out. Obtaining the right to water areas has become even more difficult due to the seal problem; the seals have chased the fish from the open sea into shallow waters close to the coast, and it is these waters that the owners do not want to rent out. Occasionally, the rents demanded are much higher than the profit gained through fishing, while water areas where fishing is not economically viable are available for rent.

The aim of the “Kalavedet käyttöön” (Fishing Water Use) project, that ended in the year 2004, was to mediate between the owners of the fishing waters and those renting. The larger aims towards alleviating the problem were not achieved during the project. However, the L-S Kalatalouskeskus (Southwest Finland Fishing Centre) did obtain an up-to-date water area ownership register as a result of the project. Fishermen interested in a particular water area can now obtain the ownership information from this register.

2. SWOT ANALYSIS OF ARCHIPELAGO SEA SMALL-SCALE COASTAL FISHING

| | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p>Strengths</p> <ul style="list-style-type: none"> -most fish species in good condition -fishing water close to fishermen -organised fish collection, and close wholesalers - developed refrigeration network - summer tourism - large demand for scalefish, fish is appreciated | <p>Weaknesses</p> <ul style="list-style-type: none"> - not economically great - fisherman age structure; average age > 50 yrs - difficult for novice to enter - conditions for fulltime professional fishing are bad - difficulty to gain access to unused fishing waters - poor equipment at catch landing sites - problems to obtain ice - investment in quality could be absent - Few fishermen, activity spread out and long distances => cooperation and marketing difficult, fish collection expensive - seasonal work – fish reception and marketing bottlenecks (note! also an opportunity!) - “leisure fishermen” disturbing the market |
| <p>Opportunities</p> <ul style="list-style-type: none"> - professionalisation - strong market position; a large part of pike-perch and perch from the Archipelago Sea - export - seasonal work – fish species changing - fyke and net caught Baltic herring brand - winter fishing - cooperation with tourism - within EU development project support | <p>Threats</p> <ul style="list-style-type: none"> - net fishing stops due to seals - no new fishermen recruited - Water quality and seabed deteriorating in the Archipelago Sea <ul style="list-style-type: none"> - fishing equipment becoming dirty - spawning sites becoming destroyed - pollutants in the fish - cormorants - other water use overriding the needs of professional fishing - catch size decreasing => fish collection becoming economically unviable - change in suggested undersize limit - fishhook water flea - increased boat traffic - concentration of fishing, making it more difficult to obtain support |

3. VISION AND STRATEGY FOR SMALL-SCALE COASTAL FISHING IN THE ARCHIPELAGO SEA FOR YEARS 2005 - 2013

3.1 AIMS AND DEVELOPMENT EMPHASES

a) Acute development needs

At present, seals are the biggest threat to professional fishing in the Archipelago Sea. A quick solution to the problem is not expected in the near future. National support actions are also needed in addition to regional actions.

STRUCTURAL AND LEGISLATIVE CHANGES ON A NATIONAL LEVEL

- compensation for seal damage until the problems caused by seals to professional fishing have been resolved

Methods for resolving the seal issue:

- limiting the seal population
- organising the use of water areas in a way to ensure that group 1 professional fishermen can have fishing as their main source of livelihood
- seal-safe fishing tackle supported

ACTIONS ON A REGIONAL LEVEL

- Development of seal-safe fishing methods particularly for pike-perch and perch fishing
- development of vessels and equipment
- development of winter fishing
- research into alternative seal defence possibilities

b) Improvement of fishing profitability

The state when setting fish prices is traditionally one where the price is set by the buyer. Long-term pricing agreements between buyers and fishermen have not been reached in the Archipelago Sea, and the buyer can set a new price every week.

Tentative suggestions for improving the profitability of fishing are as follows:

- cooperation development between fishermen when marketing
 - since almost half of the total pike-perch and perch catch in Finland is caught in the Archipelago Sea by 20-30 fishermen, this group has an excellent opportunity to gain from their strong market position through cooperation (e.g. cooperative)

- development of export opportunities
- incorporating new innovative catching methods in the Archipelago Sea, and following the general development of the industry
- intensifying fishing and fish processing; an improved refrigeration network with improved fish preservation will enable this

c) Long-term actions

Professional fishermen working at the present time will retire in 10-15 years. It is imperative to recruit new fishermen into the industry, if professional fishing is to continue in the Archipelago Sea after this time. Research should be made to discover the feasibility of apprenticeship models within the industry.

The practice of fish selling by leisure fishermen must be stopped, since it is destroying the market (falling prices, quality inconsistencies). Fish selling should be a licensed trade, and fish buying should only be allowed from licensed fishermen.

The opportunities an improved refrigeration network would provide must be fully utilised, and there must be ice available for all professional fishermen to use regardless of their marketing channel. A commitment to providing quality should be made.

3.2 VISION

YEAR 2006

THE CONDITIONS HAVE BEEN CREATED FOR PRODUCING QUALITY FISH RESPONSIBLY IN AN ECONOMICALLY VIABLE METHOD IN THE ARCHIPELAGO SEA. PROFESSIONAL FISHERMEN HAVE BEEN MOTIVATED TO FULLY UTILISE THE STRUCTURAL AND FUNCTIONAL OPPORTUNITIES OFFERED FROM AN IMPROVED WORKING ENVIRONMENT. LIMITING THE SEAL POPULATION AND COMPENSATING FOR SEAL DAMAGE MAKE IT POSSIBLE FOR PROFESSIONAL FISHING TO CONTINUE UNTIL A PERMANENT SOLUTION IS FOUND FOR THE PROBLEM.

YEAR 2013

NEW FISHERMEN HAVE ALSO ENTERED THE PROFESSION THROUGH APPRENTICESHIP MODELS. COOPERATION BETWEEN YOUNG FISHERMEN WITHIN MARKETING HAS INCREASED THE PROFITABILITY OF THE PROFESSION, AND GAINING ACCESS TO USEABLE WATER AREAS IS NO LONGER LIMITING GROWTH OF ACTIVITIES. NEW CATCH TECHNIQUES HAVE BEEN UTILISED. THE SEAL PROBLEM HAS BEEN SOLVED THROUGH NATIONAL AND REGIONAL ACTIONS.

3.3 PRACTICAL ACTIONS DURING YEARS 2005 - 2013

The required regional coastal action groups are responsible for implementing projects during the new structural programme period, 2007 – 2013, in cooperation with various parties.

The following actions will be implemented on a regional level. National solutions are needed for supporting the regional actions.

1. Solving problems caused by seals

- Development of fishing tackle and catch methods
- Development of winter fishing methods
- Other seal reduction methods

2. Cooperation between fishermen and new marketing channels

3. New professional fishermen

4. Utilisation of an improved refrigeration network

5. New innovative projects

On-going projects

- Testing of automated hook fishing equipment within pike-perch fishing
- Development of seine fishing in the Archipelago Sea
- Quality strategy (Pro Kalary)

3.4 FINANCE

Application for financing from V-S TE-keskus (Southwest Finland Employment and Economic Development Centre). The application period for current structural programme ends 1.12.2005. However, project implementation time finishes at the end of year 2008. A new structural programme period commences in year 2007.

**Maritime and Fisheries Education Fund,
Finnish Institute of Fisheries and Environment**



Kalakouluntie 72, 21610 Kirjala, Finland
Tel. + 358 (0)2 4546 300
www.kalakoulu.fi

Finnish Fishermen's Association



Jordaksentie 124, 07840 Lindkoski, Finland
Tel. +358 (0)400 720 690
www.sakl.fi

Archipelago Sea Professional Fishermen's Association

% Jalas, Yliopistonkatu 11 a B 19, 20100 Turku, Finland
Tel. + 358 (0)400 523 339
www.sakl.fi

Gulf of Bothnia Professional Fishermen's Association

Reposaaren Merimesta, Kalasatama, 28900 Pori, Finland
Tel. +358 (0)40 596 5351
www.sakl.fi